SOKOTRA.[1]

ALTHOUGH the island of Sokotra is often seen by passengers on the great ocean steamers which pass by the Sokotran Archipelago on their voyages to and from India, eastern Asia and Australia, the fauna had been very imperfectly investigated when, in 1898, a party was dispatched by the joint exertions of the British and Liverpool Museums for the purpose of collecting specimens of the animals, vertebrate and invertebrate. The botany of Sokotra itself had been previously studied by Prof. Bayley Balfour and by Dr. Schweinfurth in 1879–81, and some collections of the animals occurring had been made by them and by other visitors to the islands, but the zoology was still incompletely known.

The party of 1898 consisted of Dr. H. O. Forbes himself, Mr. W. R. Ogilvie Grant, of the British Museum, and a taxidermist. Native assistants and servants were engaged at Aden, and valuable aid was given by the Government of India, which supplied means of transport between Aden and the islands, and lent camp equipage for the use of the explorers.

The Sokotran Archipelago consists of (1) the large island of Sokotra, about eighty-five miles in length, lying 150 miles to the eastward of Cape Gardafui in Africa and about 230 miles S.E. of Ras Fartak in Arabia; (2) Abd-el-Kuri, a much smaller island, lying about half way between Sokotra and Cape Gardafui; and (3 and 4) two islets, Semha and Darsi or Darzi, known as the Brothers, between Abd-el-Kuri and Sokotra. The two larger islands are separated by a submarine valley, 100 fathoms deep, whilst a channel several hundreds of fathoms in depth intervenes between Abd-el-Kuri and Cape Gardafui, and the sea between the islands and the Arabian coast is still deeper.

Dr. Forbes's party landed and made collections on Abd-el-Kuri, and they spent about two months in the hilly region of eastern Sokotra, but were unable to visit the smaller islets. The expedition was much delayed, first by some trivial political difficulties with the Sultan of Sokotra, and secondly, and more seriously, by severe attacks of fever.

Simultaneously with Dr. Forbes's expedition, an Austrian scientific party which, under the direction of Count Lambert, was engaged in exploring the archæology, geology, and natural history of southern Arabia, visited the Sokotran Islands. This party was larger and better equipped than Dr. Forbes's modest expedition, it had a steam vessel, the *Gottfried*, at its disposal, and was able to visit the islet of Semha as well as Sokotra and Abd-el-Kuri. Amongst the members of the Austrian party were Prof. Müller, Dr. Kossmat the geologist, and Prof. Simony the naturalist. At a time when Dr. Forbes's party was suffering severely from fever, and had almost been brought to a standstill by illness, most valuable medical assistance was given to them by the Austrians.

The finely illustrated volume now published contains the results of the expedition, and owes its appearance to the Museums Committee of the Corporation of Liverpool, which has provided the funds, and authorised the publication of the work as a special bulletin of the Liverpool Museums. The book is edited by Dr. Forbes, and comprises a narrative of the journey from his pen, and descriptions by various naturalists of the different groups of animals, vertebrate and invertebrate, collected by the expedition. The list of authors is too long to quote in full, but it comprises, besides Dr. Forbes and Mr. Grant, several eminent zoologists, amongst whom are Mr. Boulenger, Mr. E. A. Smith, Mr. R. I. Pocock, Sir G. Hampson, and Mr. W. F. Kirby, of the British Museum staff, besides Colonel Godwin Austen, Mr.

FIG. 1.—Camp at Adho-Dimellus. (From "The Natural History of Sokotra.")

[1] "The Natural History of Sokotra and Abd-el-Kuri." Edited by Henry O. Forbes, LL.D., Director of the Liverpool Museums, &c. Pp. xlvii+598; 30 plates and numerous figures in the text. (Liverpool: The Free Public Museums; Hy. Young and Sons; London: R. H. Porter.)

McLachlan, Lord Walsingham, and several others. A complete list of the plants of Sokotra and Abd-el-Kuri, inclusive of important additions obtained by Dr. Forbes, is furnished by Prof. Bayley Balfour, whilst a note by Prof. J. W. Gregory on the geology is a reprint of a short paper published in the *Geological Magazine* for 1899. This paper, which was founded on a collection of rock specimens brought back by Dr. Forbes's expedition, is supplemented by an extract from a report by Prof. Bonney on a similar collection made by Prof. Bayley Balfour in 1880. It is very much to be regretted that a translation of some of Dr. Kossmat's published notes on the geology was not also added, for whilst, as might be expected in reports on rock specimens collected by naturalists who are not geologists, the notes now reprinted give a fair account of the crystalline and volcanic rocks of the Sokotran

FIG. 2.—Dragon's-Blood Tree. (From "The Natural History of Sokotra.")

group, they afford a very imperfect idea of the sedimentary formations, although the latter occupy by far the greater portion of the islands. The massive Nummulitic, Alveolina, and Hippuritic limestones, of which the islands chiefly consist, and which are of much greater geological importance than the granitic formations underlying them, are only mentioned vaguely as Cretaceous and Eocene limestones. No notice naturally is taken of one curious discrepancy between the collected specimens and Dr. Kossmat's statements. Both Prof. Balfour's and Dr. Forbes's collections from Sokotra contained comparatively modern volcanic rocks resembling those of Aden, whilst Dr. Kossmat states that no such rocks occur in Sokotra. ("Jungvulcanische Bildungen fehlen auf Sokotra—ganz im gegensatze zur gegenüberliegenden Küste Arabiens—vollständing," Sitz. math. nat. Cl. K. Akad. Wiss. Wien, 1899, p. 77.) The absence of Prof. Gregory in Australia is probably the reason why a fuller account of the geology as now known is not supplied.

The work is well illustrated with coloured plates and figures in the text. Amongst the plates, the representations of the wild ass (introduced by man but now feral), of some of the birds (especially a new goat-sucker, *Caprimulgus Jonesi*), and of the land mollusca, spiders and insects (butterflies, moths, microlepidoptera, wasps and bees, beetles, &c.), are good examples of chromolithography. The text figures of mollusca and beetles, each surrounded by a grey rectangular area in which the actual shell or insect does not always occupy the central position, though good representations, have a somewhat unpleasing effect. The few figures of plants are good, and especial attention may be directed to the remarkable Euphorbia discovered by Dr. Forbes in Abd-el-Kuri.

As is usually the case in books like that now before us, some curious illustrations of zoological nomenclature are conspicuous. For instance, Mr. Kirkaldy, to whom we are indebted for an account of the Rhynchota, has invented a generic name which he spells *Klinophilos*. Naturalists in general who follow the old rules of Latin orthography would have written *Clinophilus*, but orthographical heterodoxy is by no means the most extraordinary feature of the case, for the new name is given to a genus the type of which appears, according to the rules of Linnæus himself, to be also the type of the Linnæan genus Cimex.

Again, in the two sections dealing with the land mollusca, each of the two authors quotes a generic name, Achatinelloides, given, not by themselves, but by another writer. It is difficult to understand why so absurd a term as this, derived from a double Latin diminutive of dubious accuracy by the addition of a Greek adjectival termination, should be preserved instead of being simply ignored. Some explanation, too, might have been vouchsafed why the same families of mollusca are termed Pomatiidæ and Pupidæ by one author, Cyclostomidæ and Helicidæ by the other.

The discussion of the "distribution of land and water in the Indian Ocean as indicated by a study of the fauna and flora of the islands" is one of the subjects mentioned in the preface as having been left over for a future publication. It is to be regretted that a general summary of the results obtained, so as to afford an idea of the zoological relations between Sokotra and the neighbouring continents, has not been added to the present volume, and it must be hoped that Dr. Forbes, who has already contributed to our knowledge of the distribution of animal life in the islands of the Indian Ocean, will before long publish his views on the results of his investigation of the Sokotran fauna.

The principal features of Sokotran zoology are the following. There are, as already remarked, no indigenous mammals, no batrachians or freshwater fishes. Amongst sixty-seven species of birds recorded from Sokotra, eleven appear to be peculiar to the island, and of the twenty-two birds from Abd-el-Kuri three are unknown elsewhere. Of twenty Sokotran land reptiles no less than fifteen are peculiar, and three genera out of thirteen; the number known from Abd-el-Kuri is only three, of which two are peculiar to the island, whilst one is rather widely dis-

tributed. The forty-eight species of land mollusca inhabiting Sokotra are all, so far as known, restricted to the island, and the same is the case with the nine species from Abd-el-Kuri, whilst it appears very doubtful whether the Cyclostomaceous genus Lithidion, common to the two islands, ranges beyond the Archipelago. In arachnids, myriopods and insects, a large proportion of the species are peculiar, though not always to the same extent. As regards the relationship of the fauna in general, several of the naturalists direct attention to the presence of Mediterranean types, and in the case of the characteristic arachnids, Mr. R. I. Pocock shows that Mediterranean and Ethiopian elements prevail. Zoologically the Sokotran islands may be placed in the great semi-desert region or subregion that extends from the Atlantic to the Indus, but there is a considerable admixture in the fauna of Ethiopian representatives.

Geologically the islands consist of the remains of a plateau composed of almost undisturbed Upper Cretaceous and Eocene strata, resting upon granitoid Archæan rocks which protrude through their sedimentary covering in places and form peaks. The most conspicuous of the sedimentary formations are Nummulitic and Alveolina limestones, and "Rudistenkalk" with Radiolites, as in many other parts of the ancient Mediterranean area. According to the British observers, volcanic rocks of the Aden series are intrusive in the limestones.

It is clear, and on this all are agreed, that the Sokotran islands, although separated from Somaliland and Arabia by sea several hundreds of fathoms in depth, were once a part of the continent, and probably were connected with both Asia and Africa, but it is equally clear that the peculiarity of the fauna indicates long isolation, probably since Pliocene, if not from Miocene times.

In conclusion, whilst it is easy to point out omissions, it is only justice to say that in the publication of the present volume a difficult undertaking has been brought to a successful conclusion, and that all concerned in the production of the work deserve congratulation for having contributed so important an addition to zoological science. The present volume is much more nearly complete than most works of its kind, and has been brought out with praiseworthy despatch.

Of the two accompanying illustrations taken from Dr. Forbes's narrative of the journey, one affords an idea of the characteristic scenery in the Archæan Sokotran hills, and the other is an example of the peculiar vegetation of the island. W. T. B.

THE FOOD AND DRUGS ACTS.[1]

THE consideration of the circumstances which occasioned the epidemic of arsenical poisoning in the latter part of 1900, arising from the consumption of beer brewed from materials which were subsequently proved to contain large quantities of arsenic, and of the facts which resulted from their inquiry into the conditions under which other articles of food are actually prepared on a manufacturing scale, has led the Commissioners to direct attention to the extremely limited official control possessed by local authorities who are charged with the administration of the Acts relating to public health and the sale of food over the operations of manufacturers. The Commissioners point out that the existing machinery of public health administration provides little, if any, system of official control over the proceedings of manufacturers of food or of food ingredients. An individual or a company may start the manufacture of some new composition of food, to be sold under a "fancy" name, but there is no obligation to satisfy the local or any other public authority that the composition or the ingredients are wholesome, or that the conditions of preparation preclude the possibility of contamination by deleterious substances. The sanitary authorities of certain districts have obtained powers, under local Acts, to supervise the conditions of manufacture of ice-cream, but the principle is of extremely limited application in effect, and, broadly speaking, the control which can be exercised becomes available only after the food is on sale to the public. But even then the power possessed by the local authority under the Sale of Food and Drugs Acts is extremely circumscribed. Section 3 of the 1875 Act was drawn with the object of preventing adulteration of food with substances injurious to health, but it is so worded that it is almost impossible to obtain convictions under it, and as a consequence local authorities seldom proceed under it. A notable illustration of the impotence of the section was seen in the cases of prosecutions against publicans for selling arsenicated beer, where the proceedings were almost invariably laid under Section 6. Most persons are agreed that arsenic is a deleterious substance, but it was much easier to convict the publican of selling beer to the prejudice of the purchaser which was not of the nature, substance, or quality demanded than of selling beer containing a poisonous ingredient, to wit, arsenic. The irony of the situation is accentuated by the fact that whereas the fines under Section 3 have some relation to the gravity of the offence, and are sufficiently large to be deterrent, under Section 6, which was aimed at an entirely different class, they may be, and frequently are, wholly trivial.

Another illustration of the inadequacy of the section is seen in the case of "preservatives" in food. A departmental committee appointed by the Local Government Board has reported that in its opinion certain "preservatives" are noxious and deleterious, and has recommended their prohibition in articles of food. The Local Government Board has, as yet, done nothing with the report, but various local authorities, finding their hands strengthened by the body of evidence which the committee accumulated, have been emboldened to take steps to check the widespread use of such substances as boracic acid and formalin in connection with milk, but their action is seldom, if ever, brought under the section which imposes a stringent penalty on any person "who mixes . . . any article of food with any ingredient or so as to render the article injurious to health with intent that the same may be sold in that state," but under the section which affords a chance of the magistrate saying that milk *plus* preservative contains more than the purchaser bargained for, and was therefore not of the nature, substance, and quality demanded.

The difficulty, of course, in Section 3 is to prove knowledge and "intent" on the part of the seller, but there is very little doubt that if convictions could be more readily gained under Section 3 the use of preservatives would receive a much needed check.

A public department may, however, be spurred into activity when its interests are jeopardised, and here again beer supplies us with a notable illustration. Beer, as we all know, furnishes much of the revenue of this country, and anything which affects the interests of beer may *pro tanto* be held to affect the

[1] See the article in last week's NATURE, p. 179. The papers referred to are (1) Final Report of the Royal Commission appointed to inquire into Arsenical Poisoning from the Consumption of Beer and other Articles of Food or Drink. (Parliamentary Paper. Cd. 1848. 1903.) (2) Final Report of the Departmental Committee appointed to inquire and report upon the desirability of Regulations under Section 4 of the Sale of Food and Drugs Act 1899 for Butter. (Parliamentary Paper. Cd. 1749. 1903.).